Please sit at a table with posters

Value ALL Voices

Leveraging student thinking in mathematical discussion to impact student self-identity in math

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"notice and name competencies to leverage new learning and help young people recognize how they are mathematically capable."
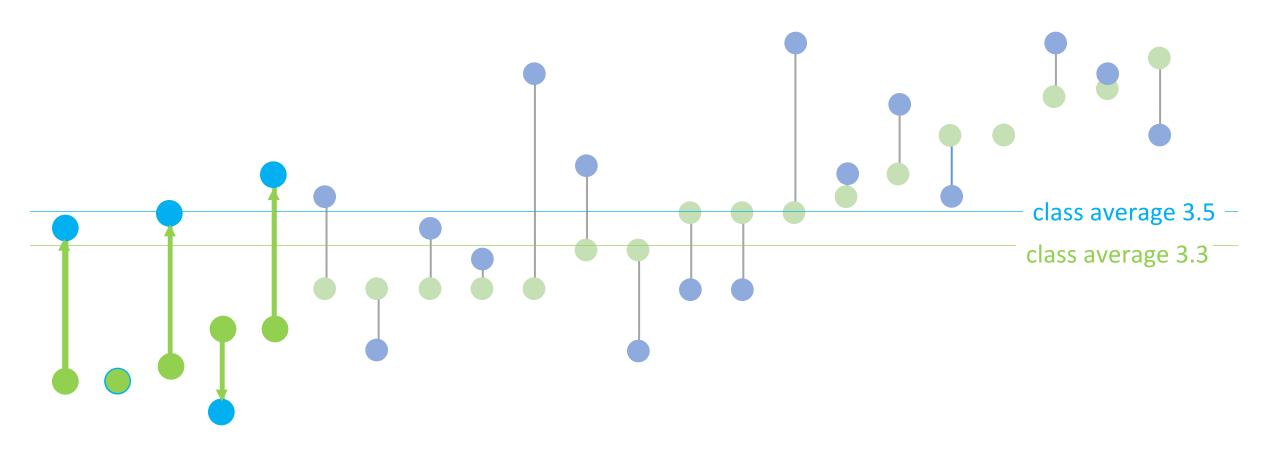
Student self-identity

Circle the number that shows how strongly you agree

| 1=never | 2=not often | 3=sometimes | 4=most of the time | 5=always | ys |

I can figu ... 2 ③ 4 5

I am a do ... 2 3 4 5

I am sma ... ② 3 4 5

My ideas ... ② 3 4 5

I show m ... ② 3 4 5

Student	Self-identity average	My ideas are talked about…
Kim	2.3	Not often
Ethan	2.3	Not often
Altin	2.4	Never
Derek	2.6	Not often
Jo	2.6	Not often

I contribute to math discussions ① 2 3 4 5
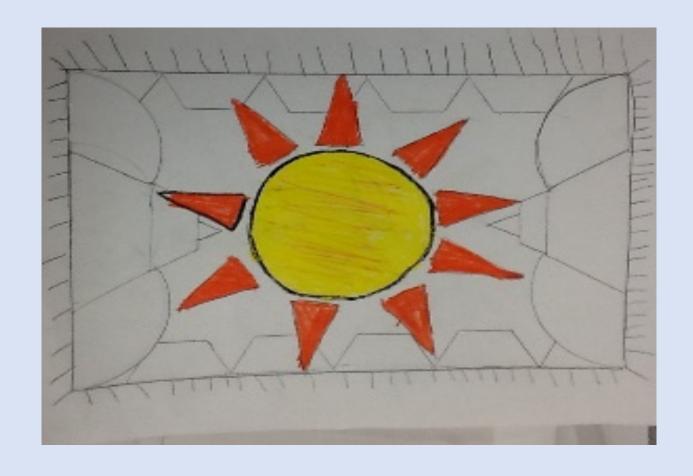
I share my ideas in math with peers 1 ② 3 4 5

Four rounds of discussion

1. Begin with open task.
2. Select student work for sharing.
3. Facilitate discussion centered on student work samples selected using talk moves.
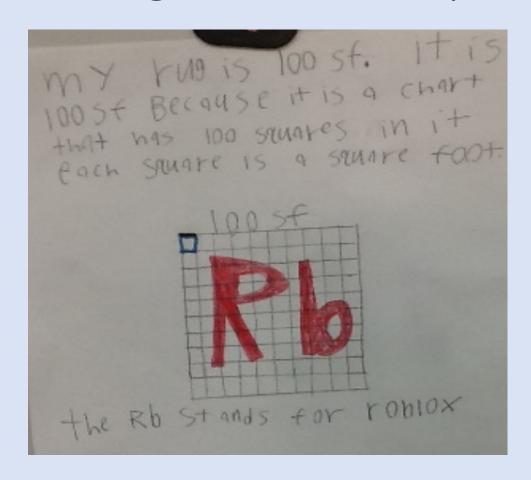4. Listen for opportunities to follow up on student language and strategies.
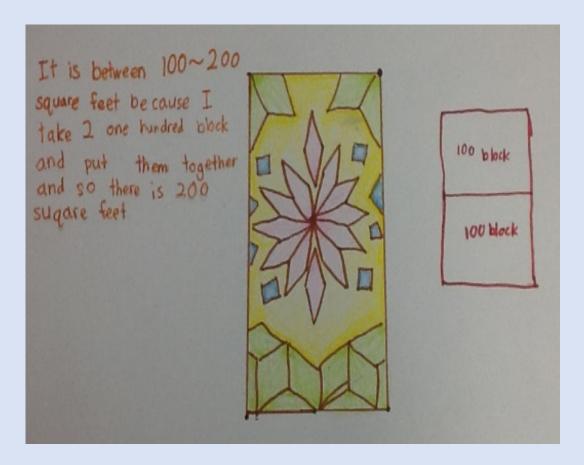
Changes in self-identity ratings on pre and post survey

class average 3.5

class average 3.3

1. Begin with an open task

Design a rug that has an area between 100 and 200 square feet.
Be as creative as you like....
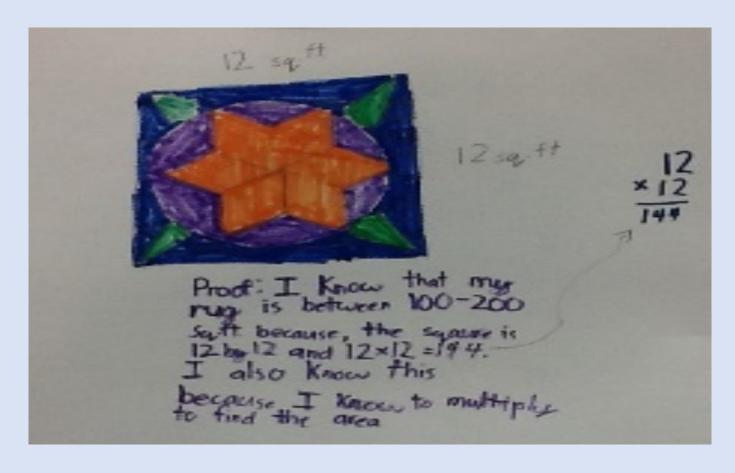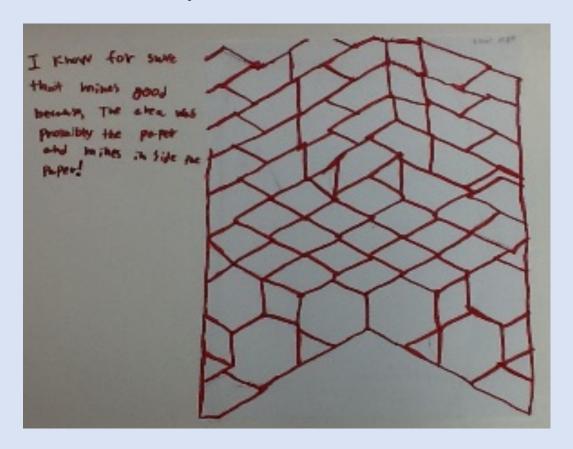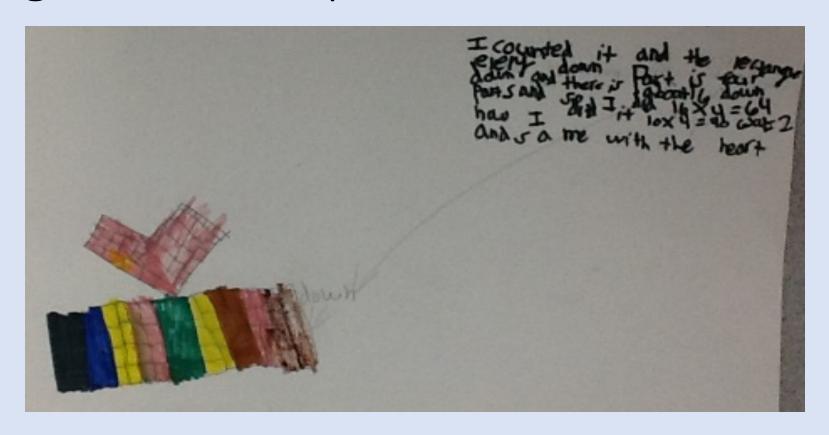You must be able to prove how you know the area is between 100 and 200 square feet!

1. Begin with an open task

No proof

1. Begin with an open task

my rug is 100 sf. It is
100 sf Because it is a chart
that has 100 squares in it
each square is a square foot.

100 sf

Rb

the Rb stands for roblox

It is between 100~200
square feet because I
take 2 one hundred block
and put them together
and so there is 200
suqare feet

100 block

100 block

Directly or indirectly modeled all square units of area

1. Begin with an open task

Used formula

1. Begin with an open task

Bounded limits

1. Begin with an open task

Composite shapes

1. Begin with an open task
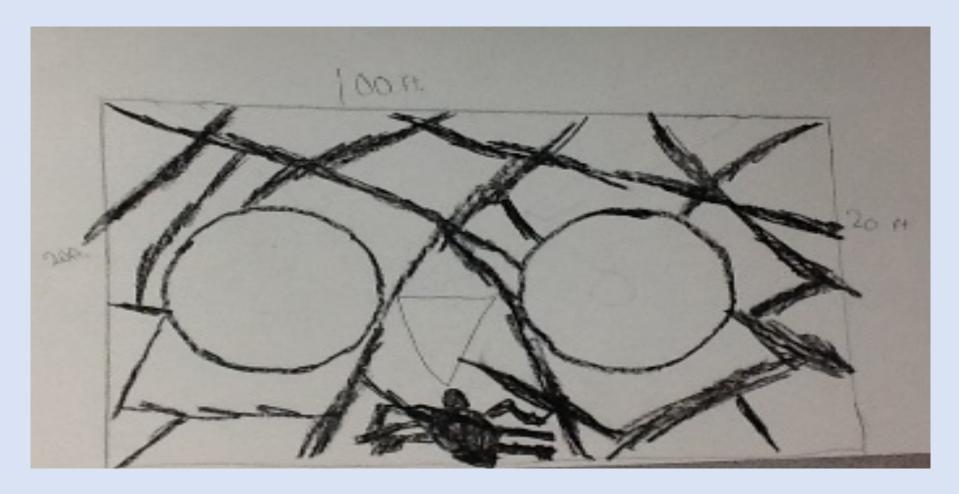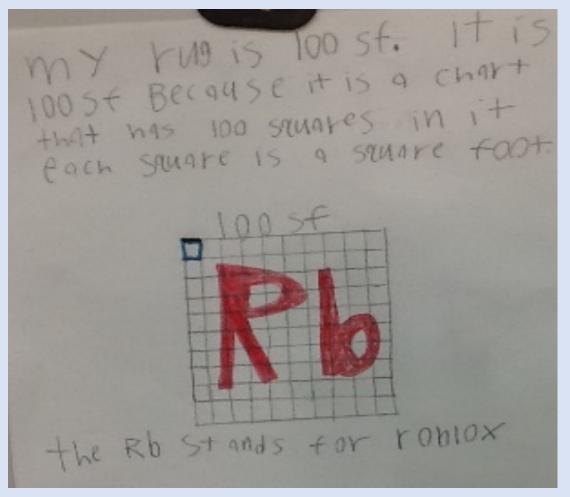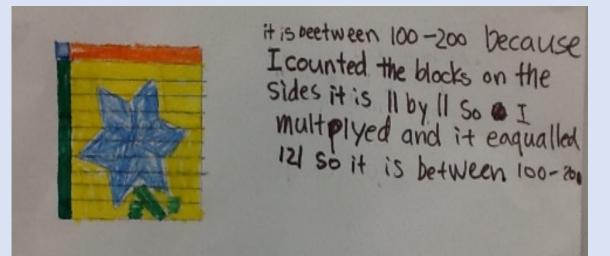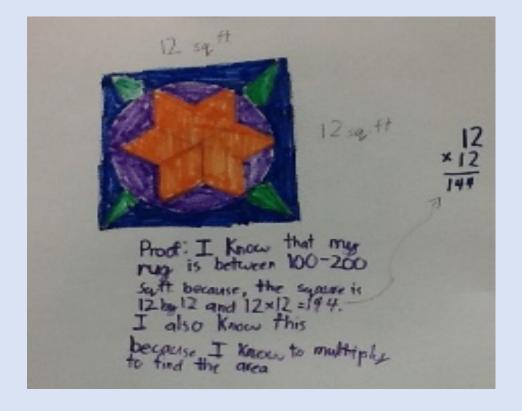
Common ~~Mis~~ Pre-conception

2. Selecting student work for sharing

Derek: ny rug is 100 sf. It is 00 sf Because it is a chart that has 100 squares in it. each square is a square foot.

Ethan: I know for sure that mines good because, The area was Probibly the pa-per and mines inside the Paper!

Kim

Jo: It is between 100~200 square feet because I take 2 one hundred block and put them together and so there is 200 suqare feet.
100 block
100 block
the Rb Stands fo
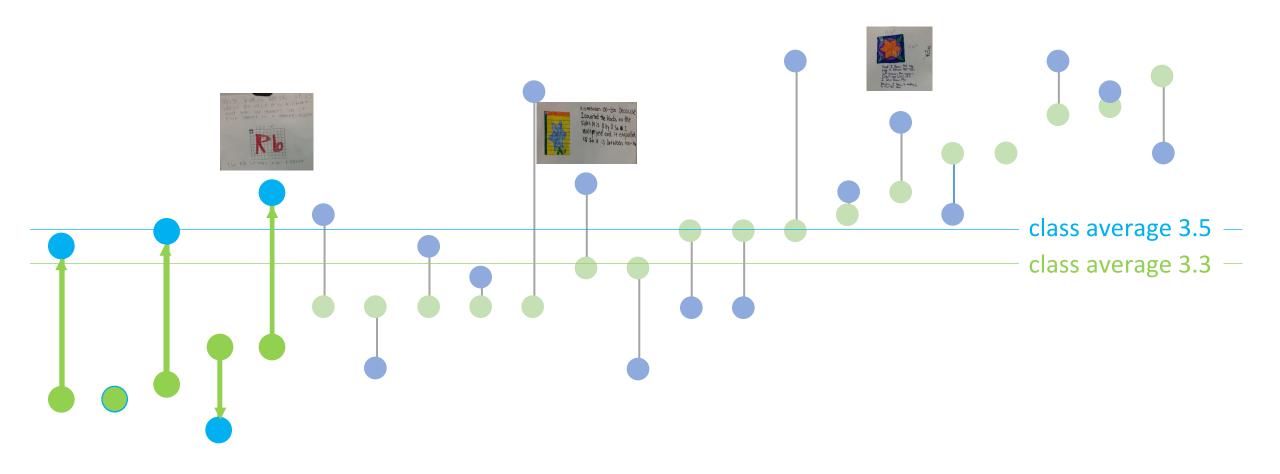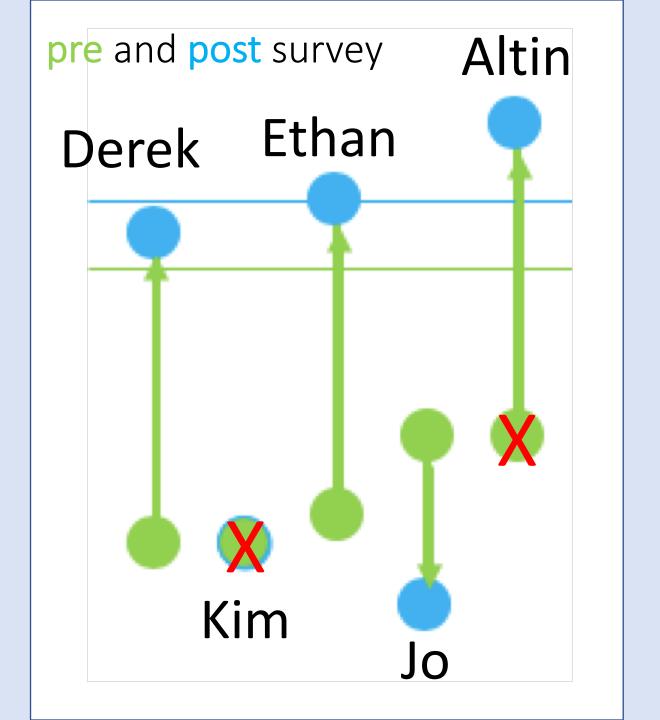
Altin: KEY: □ = 10 square feet
PROOF:

2. Selected work

it is beetween 100-200 because
I counted the blocks on the
Sides it is 11 by 11 So I
multplyed and it eaqualled
121 So it is between 100-20

my rug is 100 sf. It is
100 sf Because it is a chart
that has 100 squares in it
each square is a square foot.

100 sf

the Rb stands for roblox

12 sq ft

12 sq ft

$$\begin{array}{r} 12 \\ \times 12 \\ \hline 144 \end{array}$$

Proof: I know that my
rug is between 100-200
sq ft because, the square is
12 by 12 and 12×12 =144.
I also know this
because I know to multiply
to find the area

Changes in self-identity ratings on pre and post survey

class average 3.5

class average 3.3
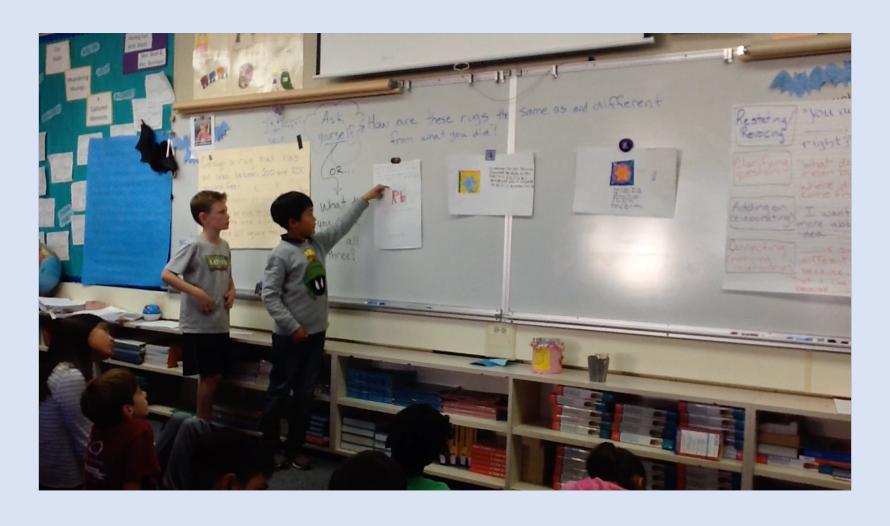
3. Facilitate discussion
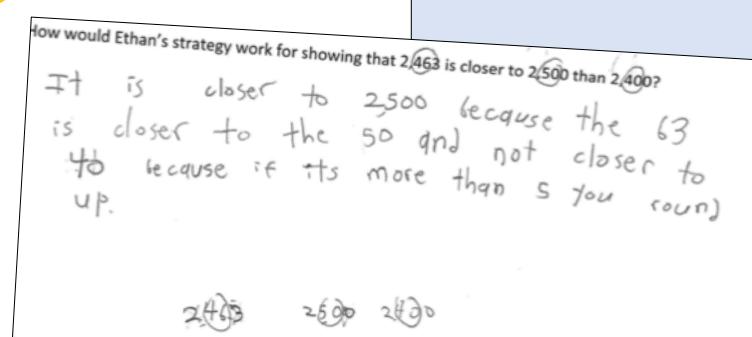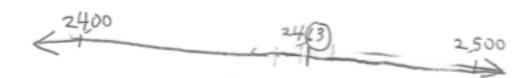# 4. Listen for student language & strategies

4. Listen for opportunities to follow up on student language and strategies

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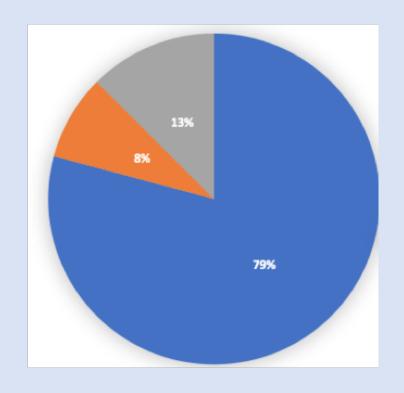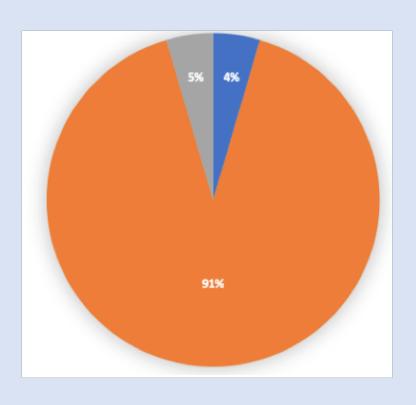How would Ethan's strategy work for showing that 2,463 is closer to 2,500 than 2,400?

2,463
↓
46
↓
50
↓
2500

How would Ethan's strategy work for showing that 2,463 is closer to 2,500 than 2,400?

It is closer to 2500 because the 63 is closer to the 50 and not closer to 40 because if its more than 5 you round up.

2463   2500   2430

2400 ←—————————— 2463 ———→ 2,500
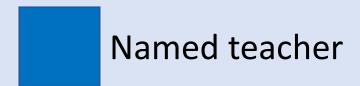
Instructional shifts

- Look at students work through lens of capacity
  – what **can** this work contribute?
  - ~~what is wrong with it? Got 'it' or not?~~

- Use talk moves to elicit student ideas and help students learn to explain their thinking and respond to the ideas of others

- Listen for and invite student ideas 'in the moment'

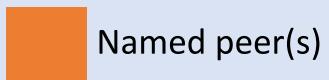- Investigate student language & strategies

How do you like to contribute to math discussions?	
Response on pre-survey	Response on post-survey
I contribute by sometime listen to teacher. **Jo**	I don't contribute discussions most of the time. but I just give them my idea
To Listen to the teacher **Kim**	I like to hear some ones idea so i can get inspired by them ant get my own ideas
I contribute by listening to the teacher **Derek**	I like to add on in math discussions.
I contribute by listing in a math discussions. **Ethan**	by telling the Ansewr
PAY ATTENTION **Altin**	I listen and sometimes raise my hand.
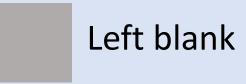
Nominate 3 or more people who have interesting math ideas
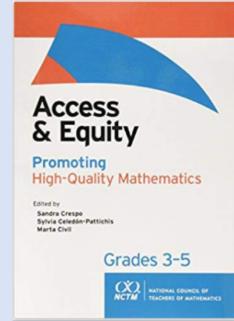

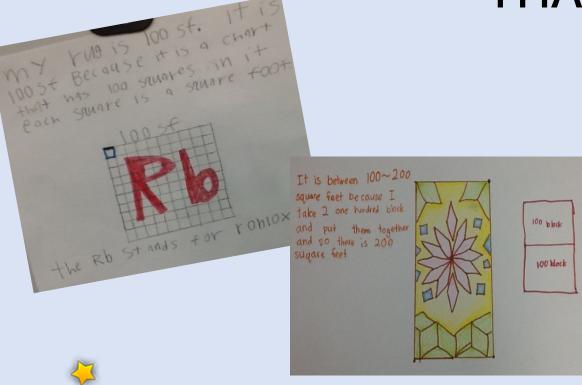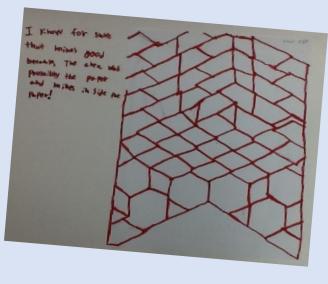Named teacher   Named peer(s)   Left blank

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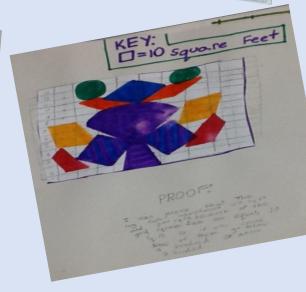
Instructional implications?

Access & Equity: Promoting High-Quality Mathematics

Edited by
Sandra Crespo
Sylvia Celedón-Pattichis
Marta Civil

Grades 3-5

NCTM NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

THANK YOU!

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solano county office of education

Name _____

The largest penguin circles represent thousands, the penguin polka dot circles are hundreds, the polka dot striped circles are tens and the small circles are ones.

Is the number shown below nearest to 3,000 or 2,000? How do you know?

What hundred number is it nearest to? How do you know?

The largest penguin circles represent thousands, the penguin polka dot circles are hundreds, the polka dot striped circles are tens and the small circles are ones.

Is the number shown below nearest to 3,000 or 2,000? How do you know?

What hundred number is it nearest to? How do you know?

its nearer to 2,500 because 75 is more than fifty.

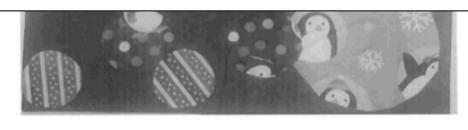its neared to 2,000 because 2,475 is less than halfway there.

2,475

1. 2000 becaus 4 did not make to the have-way point.

2.500 because we can take the 2000 out and because 7 had made it to have-way point.

2,475 is 525 numbers away from 3,000 and its 475 numbers away from 2,000

2,475

1,000 + 1,000 = 2,000
2,000 + 400 = 2,400   2,470 + 5 = 2,475
2,400 + 70 = 2,470

24 rounds to 20